MIT's Prof. Norbert Wiener On Why the Lag In U. S. Science, See Page 3

I. F. Stone's Weekly

VOL. V, NO. 40 OCTOBER 21, 1957 WASHINGTON, D. C. 15 CENTS

Lifting the Curtain on "Project Sunshine" and the AEC's Madison Avenue Techniques

The "Hidden Persuader" in the Nuclear Testing Controversy

A new book on advertising methods has popularized the term "hidden persuader." Products and ideas are sold indirectly, by utilizing phrases with benign connotations which unconsciously shape the public mind. An example the author (Vance Packard: *The Hidden Persuaders*) might add to his collection appears in the current controversy over nuclear testing. This is of immediate importance now when the issue is being debated by the United Nations General Assembly.

The hidden persuader in this case is the effort of the U. S. government to fight off the demand for a suspension of testing by associating radioactive fallout with natural radiation and sunshine, thus lending it a benign connotation. Henry Cabot Lodge told the Assembly the present levels of fallout from testing "are extremely low . . . a fraction of the natural radiation to which man has always been exposed." Britain's Minister of State, Commander Alan Noble, echoed the same line when he assured the Assembly that radiation from tests was but a small fraction of that from sources such as "the natural radiation that has existed since the beginning of time."

"Under the Rug": Strontium 90

The keynote of this campaign was struck when the Atomic Energy Commission, finally giving way to pressure from Congress for a scientific investigation of the fallout peril, called its study, "Project Sunshine." It is as if from the very start the intent was to make us assume that the radioactivity let loose by nuclear testing was something like sunshine and natural radiation. Pushed into the background was the fact that neither sunshine nor natural radiation contains the new cancer creating poison, Strontium 90, which did not appear in the world until the first nuclear explosions.

The fact that the Atomic Energy Commission is more anxious to manipulate than to inform public opinion is evident from certain little noticed passages in the recently published hearings held by the Holifield subcommittee of the Congressional Joint Committee on Atomic Energy on "The Nature of Radioactive Fallout and Its Effects on Man." These throw new light on the application of Madison Avenue techniques to the fallout debate. Attention should be called to the testimony of the Atomic Energy Commission's chief scientist spokesman on fallout, Commissioner Willard F. Libby and particularly to his cross-examination on pages 1198-1200 and 1233 of the hearings, now available from the Joint Committee here in Washington.

The scientific layman may be unable to cope with the technicalities of physics and genetics, but he is qualified to judge from these passages whether the AEC through its chief spokesman has been dealing in an honest and above board manner with the Congressional committee and the public.

The subcommittee questioned Dr. Libby as to why the Atomic Energy Commission had chosen the name "Project Sunshine" for its study of the danger from fallout:

Representative VAN ZANDT. Dr. Libby, just how did you arrive at naming this Project Sunshine?

Dr. LIBBY. Well, it happened in the summer of 1953 at the RAND Corp. [the Defense Department's subsidiary, Research and Development Corporation—IFS] at Santa Monica. I have been trying to think for the last several hours just how it happened. I do not remember and I do not know, Mr. Van Zandt. We recognized the need for some name, and one of the boys in the meeting invented this name, and we took it. I am sorry, I have no better memory.

Hickenlooper Lends A Hand

Senator Hickenlooper (R. Iowa), always the AEC's most faithful ally on the Joint Committee, believing that this dangerous question had been safely by-passed, proceeded to develop the "hidden persuaders" in the use of the term Project Sunshine:

Senator HICKENLOOPER. Mr. Chairman, May I ask Dr. Libby—as I understand it, sunshine is stimulated by radiation, is it not?

Dr. LIBBY. Yes, sir; in the ultimate sunshine is derived from radiation.

Senator HICKENLOOPER. And sunshine, as we know it, and as life exists, is completely vital to life?

Dr. LIBBY. Yes, sir.

Senator HICKENLOOPER. And the effect of the sun and radiation is vital to life. I am not trying to say how the term came up, but it seems to me there is quite a close correlation between sunshine and the effects on human life of radiation.

Dr. LIBBY. I am trying to find out how this name was invented. I am sorry I have not been more successful. I have given you the chronology of it.

Senator Hickenlooper's lyrical enthusiasm over radiation and sunshine was too much for Congressman Chet Holifield (D. Calif.), the chairman of the subcommittee. He broke in:

Representative HOLIFIELD. There is this exception, however, that sunshine is beneficial to the growth of life, and radiation seems to be the other way. Is that not right?

Dr. LIBBY. At least radiation has many deleterious effects, Mr. Holifield. I think it has a few good ones.

No one asked Dr. Libby what these good ones were but even Congressman Cole, the most conservative Republican on the Joint Committee, was troubled:

Representative COLE. Mr. Chairman, on this point of the name, Project Sunshine, I fear a feeling may have developed that that name was deliberately selected to mislead the public with respect to the importance of the subject under dis-

(*Continued on Page Four*)

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A Swift Summation from a Capital Which Has Two Dulleses Too Many

How Much Is Enough In An Arms Race? Why Is Co-Existence Unmentionable?

No one here in Washington even mentions what would seem to be the obvious conclusion to be drawn from the Soviet satellite and ICBM, and this is the need for launching a campaign to educate the American people to the necessity of co-existence. No doubt, despite Soviet advances in nuclear rocketry, we could wreck Russia, but there can be no doubt that Russia could also wreck us. The choice is between living together on the same planet or dying together but co-existence is still an unmentionable here and it is easier to call for bigger appropriations to build us bigger weapons. Even the ADA talks about "penny-pinching" and that sensitive political weather vane, Vice President Nixon, is separating himself a little from the Eisenhower Administration the better to protect his flank against Democratic criticism that we ought not to put "economy" ahead of "defense."

A Very Large "Penny"

But on missiles that's a mighty big penny we've been pinching. In the testimony on the 1958 budget before the House Appropriations Committee, the actual figures on missile spending this fiscal year and last have been ludicrously censored out of the hearings. But a research memorandum published in the same hearings shows we spent almost $3,000,000,000 last fiscal year. More will be spent this one. How much is enough? Some people talk as if we must spend every dollar defense "requires"—as if this were an ascertainable figure! But in an arms race the sky's the limit; the more we spend, the more they spend; the more they spend, the more we spend.

There is a mutual interest in putting some limits on armament, but this requires negotiation and negotiation is anathema in Washington. The Democratic opposition doesn't have the nerve to mention the word; it's easier to call for bigger spending. In the meantime Krushchev and Dulles have been hurling mutual threats at each other over the Middle East quite as if this were the Nineteenth century in which a somewhat enlarged Crimean war could be fought without really disturbing business as usual in the world capitals. Everywhere a Nineteenth century nationalist mentality prevails. The Arabs would like to attack Israel; Turkey would like to establish her hegemony over the Arabs; Russia launches satellites into the heavens but still covets that minuscule terrestrial ditch at the Dardanelles.

The missiles are intercontinental but not the minds, and Mr. Dulles, in a MacArthur-like stance, warned Moscow at press conference that in the event of an attack by the Russians on Turkey, the Soviet Union would not be "a privileged sanctuary"—quite forgetting that neither would the U. S. A. Mr. Dulles enjoys the same happy gaps in his thinking as Mr. Krushchev, who remains blissfully sure—as he indicated in his Reston interview—that a nuclear war would only destroy capitalism.

A curious feature of the satellite crisis is that no one seems to say a word in criticism of Allen W. Dulles and the CIA, though obviously Central Intelligence badly miscalculated. No paper we have seen has yet picked up from his recent San Francisco speech that smug assurance we quoted last week on Russia's inability to keep up with the new technological problems.

Krushchev's defense of non-intervention in Syria makes sour reading after his intervention in Hungary. But wouldn't it be better to have an agreement among the big powers to prevent an arms race in the Middle East than to let the drift continue? When the question was put to Mr. Dulles at press conference, he said unctuously he didn't know why "the Soviet Union and the U. S., and one or two other countries should set themselves up as a kind of protectorate over the Arab countries." Isn't that what we have tried to do single-handed with the Eisenhower doctrine?

At the Supreme Court

The reopening of Court showed the trend toward restoration of the Bill of Rights still running strong. The first two convictions under the membership clause of the Smith Act, Scales and Lightfoot, were reversed for new trials under the Jencks rule, making the original reports of informer witnesses available to the defense. New convictions, if obtained, are unlikely to stand up on appeal unless the government has stronger evidence than it dug up the first time.

As in Scales and Lightfoot "confession of error by the Solicitor General" led the Court also to reverse the convictions of three persons of contempt after pleading the Fifth amendment before the House Un-American Activities Committee in Portland, Oregon, in 1954. The conviction of Willard Uphaus for contempt in the New Hampshire "witch hunt" was vacated by the Court in the light of the similar Sweezy case last term. The Court agreed to hear the appeal of a New York City subway conductor discharged as subversive under a State security act. In addition, almost unnoticed, the Court allowed the Attorney General to avoid a test of his blacklisting power by dropping two Lithuanian associations from his "list" (see discussion in our issue of Oct. 7, p. 7), thus rendering their appeal moot.

Japan's Little Noticed Compromise Proposal for Suspension of Nuclear Tests

"In the absence of scientific proof to the contrary, it seems only reasonable to assume that as long as nuclear tests are continued, the cumulative radioactivity may reach dangerous proportions injurious to human health. . . .

"We appreciate the purport of the Western approach because their proposal, while providing for the suspension of nuclear tests, encompasses all aspects of the disarmament problem. However, since a general agreement as envisaged by the Western powers, covering such a wide range of problems, would require protracted negotiations, it would delay the realization of test suspension. . . .

"We call for a partial disarmament settlement, and for a moratorium on tests lasting no more than one year within which time negotiations are to be conducted 'to reach an agreement on the prompt installation of a supervision and inspection system to verify the suspension of tests.' . . .

"The suspension is only for a period of less than 12 months. And the atmosphere in which negotiations will be conducted would be much less strained if not greatly calmed by the suspension. Furthermore, suspension of tests requires only a relatively simple system of supervision."

—Mr. Matsudaira (Japan) UN General Assembly, Oct. 10.

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The Developer of the Mechanical Brain On Our Lag in the Race for the ICBM

Norbert Wiener's Diagnosis of the Weakness in American Science

By Prof. Norbert Wiener

Though Norbert Wiener of MIT is one of the mathematical and scientific geniuses of our time, and the Soviet satellite has made science a No. 1 concern, the press generally ignored the address made by Prof. Wiener on October 10 at Wabash College, Crawfordsville, Indiana, where he sought to spell out the weaknesses of our scientific effort. Prof. Wiener was one of those who developed the modern "mechanical brain." We believe his analysis of the greatest interest at this moment and present the gist of it here.

For a long period, and to a very large extent, up to the Second World War the centre of American science was the individual scientist developing his own ideas after his own fashion, and possibly arriving at results suitable for commercial, industrial and military development. . . .

Industry and the war have produced a great change in this. Radar and the atomic bomb presented us both with enormous possibilities and with the need of doing something about these possibilities quickly. The pace was speeded up and every available young man was thrown into the effort. As many of these young men were not yet in a position to work freely on their own, and as much of the effort was of a military nature, and therefore of a secret nature, scientific tasks were divided up by the administrators of science into small pieces, and scientists were employed for very specific purposes, often without the least attempt to acquaint them with the larger aspects of the problems on which they were working and even with a deliberate attempt to discourage curiosity on their part as concerned these larger aspects.

Here let me say by parenthesis the secrecy of military effort merely reinforced a growing policy of secrecy on the part of the commercial firms who regarded the intellectual aspect of scientific progress as secondary to the task of getting ahead of their competitors.

Ideas Became Un-American

Reinforcing this departmentalization of science was a growing attitude of worship of the gadget. The automatism of industry, and particularly of new high speed computing machines, led to a philosophy of intellectual development in which the creative scientist was to be toppled from his high place and to be replaced by the mass effort of the assembly line. The unheard of speed of the newer computing machines completely dazzled those who had the task of applying ideas to industry or military purposes and led to the attitude that ideas were no longer necessary and even un-democratic and un-American. . . .

The ideal of the great original scientist has given way largely to that of the scientific administrator who is more concerned to parcel out his effort and to keep his machines and ideas busy than to develop his concepts. . . .The scientist is valued in accordance with the amount of money that he spends, and his secrecy often protects him from the inspection which would force upon him the need to spend this money to good advantage.

Second Rate Minds at First Rate Machines

It is not surprising under these circumstances that we have already signs that the machinery of scientific investigation is creaking heavily. I do not have, nor wish to have, the entre to the hush-hush work being done on inter-continental missiles, but the merest layman may be pardoned for his suspicion that all is not going well. . . .

I have had an early and sharp interest in automatism and the high speed computing machine. Let me try to disabuse you of some prevalent delusions concerning it. The high speed computing machine is not only an ingenious device but in its proper field it is indispensable. It has given us the ability to handle problems which we could previously not even have approached, but there is one thing that it is not—a replacement for intelligence. . . . In fact not only does the computing machine not lessen the intellectual demands on the scientist, but when properly used it should increase these to an almost intolerable point. It is the poorest conceivable policy to employ second rate intellects in using first rate machines. . . .

Physicists Who Don't Know Physics

The present age of specialization has gone an unbelievable distance. Not only are we developing physicists who know no chemistry, physiologists who know no biology, but we are beginning to get physicists who know only the very shadow of mathematics. Moreover, the latter day physicist does not know physics. He proceeds at once to the subtleties of quantum theory without a good fundamental knowledge of classical mechanics or classical optics. . . .

This state of affairs cannot go very long. . . . Science is a developing subject and one never knows in one field how soon the essentials of another may find their application. For example, I have been studying the physiology of brain waves and in this I found it indispensable to use not merely the analogy of spectroscopy as the study of electro-generating networks, but even the most intimate and technical details. . . .

The Scientist as Citizen

Apart from the need for men of a general cultural background for the specific purpose of intellectual progress, there is an even greater need for a broad basis of education if democracy is to survive, or even if society is to survive—for that it will survive is by no means a foregone conclusion. So long as we depend for our intellectual development on quickly-trained specialists, on neoteric forms like the axdoll who are supposed to give birth to ideas before they have emerged from the larval state, we shall have to depend for the thoughtfulness and understanding which make society and democracy possible on those who have barely enough intellectual background to carry on their controlled, supervised routine work, and have nothing left to spare for their duties as citizens.

In this direction there lies nothing but totalitarianism. Democracy depends on the existence of a large part of the community with intellectual and spiritual resources far greater than those they will be called to exhibit at any single moment or in any single direction. Otherwise, we shall sink into a Byzantine type of bureaucracy. . . .

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Holifield Cuts Into the Double-Talk About Cosmic Rays and Natural Radiation

Dr. Libby Finally Admits That Strontium 90 Makes Bomb Fallout Different

(*Continued from Page One*)

cussion. Since you were connected to a rather direct degree with this project from its inception, can you assert unequivocally that the selection of the name "Sunshine" has no purpose or intent of misleading or minimizing the importance of the study?

Dr. LIBBY. Yes, Mr. Cole, I certainly can. It never had any purpose to mislead or be flippant about the whole matter. The name was selected—and I am afraid perhaps we did not pay too much attention to the name in selecting it. But there was never any intent to mislead or to minimize the importance of the hazards.

This flat denial annoyed Senator Anderson (D. New Mex.). He interrupted with an angry question:

Senator ANDERSON. I thought you testified you did not know how it was selected. If you did not know how it was selected, how could you know the circumstances under which it was selected?

Dr. LIBBY. What I testified to, Senator Anderson, was I did not understand how the word "Sunshine" rather than any other word was taken.

Senator ANDERSON. Then how could you answer Mr. Cole's question in the affirmative?

Dr. LIBBY. Well, we certainly did not select this word with any intent of misleading anyone about the seriousness of this subject. That is all.

Representative COLE. The witness may very properly testify he does not know how this was done, but he also may testify he does know why it was not done.

Senator ANDERSON. If you can prove a negative, you can go to it.

One has to be very naive to believe that the Atomic Energy Commission, with its staff of trained public relations men, just happened to call its study of fallout "Project Sunshine," picking a name calculated to lull the public into complacency rather than to alert it to possible new dangers. As the hearings went on Dr. Libby himself constantly equated fallout with natural radiation until Congressman Holifield again broke in on him with a significant line of questions:

Representative HOLIFIELD. Dr. Libby, to make the picture complete, is it not true that there is a very important difference in the bomb fallout which is not contained in either the cosmic rays or in the natural radiation, and that is the factor of strontium 90?

"Maybe . . . A Small Fib"

"What is seldom realized is that the tests themselves are enabling us to develop weapons with reduced fallout so that radiation hazards in the event of hostilities can be restricted to military targets."

—Henry Cabot Lodge, UN General Assembly debate on nuclear testing.

Senator ANDERSON. Doctor, I want to come back to this question of clean weapons. . . . In your speech you referred to a clean weapon. Do you still feel we have a clean weapon?

Dr. LIBBY. Well, sir, I think we all know what the facts are. It is a question of how you describe the situation. We certainly have succeeded in cleaning them up to a great degree. If you call cleaner "clean," maybe you are telling a small fib. . . .

Senator ANDERSON. I am only trying to say that a lot of our people have been reassured on this question by this co-called clean weapon, and it is still a dirty weapon. We have also learned how to make our weapons even dirtier than they originally were. I think it is dangerous to use terms like . . . "clean" when we still mean "dirty" . . . I just hope no one will think there is no fallout danger when it comes to the use of weapons in atomic warfare, because it will come.

—The Nature of Radioactive Fallout and Its Effects on Man, Hearings Holifield Subcommittee, Joint Cong. Committee on Atomic Energy, p. 1233.

Dr. LIBBY. Yes, sir.

Representative HOLIFIELD. Which gets into the bones?

Dr. LIBBY. Yes, sir.

Representative HOLIFIELD. Where cosmic rays and natural radiation do not have that particular residual effect in the bones of people. So we have got another factor and, therefore, your analogy there must take into consideration also this new factor of strontium 90 that we must consider.

Dr. LIBBY. There is a great deal of truth in what you have said, Mr. Chairman. To comment on your statement requires a small technical remark. Biological—

Representative HOLIFIELD. Why did you not make that statement first, Dr. Libby—

Representative HOLIFIELD (continuing). Instead of making a statement which was susceptible again to a benign interpretation?

The question was never answered by the slippery Dr. Libby.

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NEWSPAPER

Entered as Second Class Mail Matter Washington, D. C. Post Office

I. F. Stone's Weekly. Entered as Second Class Matter at Washington, D. C., under the Act of March 3, 1879. Post-dated Mondays but published every Thursday except the last two Thursdays of August and December at 561 Nebraska Ave., N. W., Washington 15, D. C. An independent weekly published and edited by I. F. Stone; Circulation Manager, Esther M. Stone. Subscription: $5 in the U. S.; $6 in Canada; $10 elsewhere. Air Mail rates: $15 to Europe; $20 to Israel, Asia and Africa.

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